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rate instability. What are the costs and benefits of dollarizing, and which developing countries are most likely to benefit?

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HERE IS an old joke that says that the exam questions in economics remain the same every year—only the answers change. Certainly, the debate about the best exchange rate regime has been with us forever, but new answers keep appearing. The newest answer to the question of what exchange rate regime countries should choose is "none." That is, countries should forgo using their own currencies entirely and adopt as legal tender a stable foreign currency, most commonly the U.S. dollar. Last year, the Argentine government gave serious consideration to dollarization, and some prominent economists have begun to argue that essentially all developing countries should dollarize. Not only developing countries, however, are considering dollarization. Prompted partly by the adoption of the euro this year, some have suggested that Canada should adopt the U.S. dollar. (Dollarization is also used to describe the spontaneous use of the U.S. dollar alongside a country's domestic currency in transactions. As used here, however, the term refers to the dollar's total replacement of the domestic currency—that is, "full" dollarization.)

New answers to the exchange rate question appear because the world continually presents new problems to policymakers. During the 1980s, much of the debate about exchange rate regimes for developing coun-

tries centered on the role of exchange rate pegs in inflation-stabilization programs. Two distinguishing features of the 1990s have changed the terms of the discussion. First, the inflation problem has receded considerably. Second, as the degree of capital mobility and the scale of capital flows have increased sharply, so have the apparent frequency and severity of currency crises. And many of the targets of these fierce speculative attacks were maintaining some sort of pegged exchange rate regime.

Because of those crises, the idea of full dollarization has elicited considerable interest. The view has emerged that in a world of high capital mobility, exchange rate pegs are an invitation to speculative attacks and that only extreme choices—a firm peg such as a currency board or a free float-are viable. Advocates of dollarization have attacked both of these alternatives. Free floats, they argue, are not viable for many countries because they result in excessive exchange rate volatility or a de facto "soft peg" if the authorities resist exchange rate movements. Meanwhile, it has become clear that even currency boards are not immune to costly speculative attacks: for example, Argentina and Hong Kong SAR suffered from episodes of financial contagion in recent years that resulted in sharp increases in interest rates and recessions.

Full dollarization promises a way of avoiding currency and balance of payments crises. Without a domestic currency, there is no possibility of a sharp depreciation, and sudden capital outflows motivated by fears of devaluation are ruled out. Dollarization may also bring other benefits: closer integration with both the United States and the global economy would be promoted by lower transaction costs and an assured stability of prices in dollar terms. By definitively rejecting the possibility of inflationary finance, dollarization might also strengthen institutions and boost investment.

Yet countries may be reluctant to abandon their own currencies. For one thing, the currency is a national symbol, and proposals to join a monetary union (or directly adopt the U.S. dollar) may draw criticism from some political quarters. From an economic point of view, the right to issue currency provides the government with seigniorage revenues (resulting essentially from the difference between the cost of producing and distributing paper money and coins and their (greater) purchasing power). The central bank can use currency, which does not bear interest, to purchase interestbearing assets, such as foreign reserves. These seigniorage revenues show up as central bank profits and are transferred to the government. Countries that dollarized their economies would lose these revenues unless the United States decided to share part of the extra seigniorage it would obtain. In addition, a dollarizing country would be relinquishing any possibility of having an autonomous monetary and exchange rate policy, including the use of central bank credit to provide liquidity support to its banking system.

Is dollarization, then, a better exchange rate regime for developing countries? To simplify the discussion, we compare the merits of dollarization to those of its nearest "competitor"—the currency board. Under a currency board arrangement, the monetary authorities commit to trade foreign exchange for domestic currency on demand at a fixed rate of exchange. This is the only mechanism the central bank can use to increase the base money supply—there is no extension of domestic credit to the government or banks, for example. Thus, the domestic currency is fully backed by a corresponding stock of foreign exchange. A focus on comparing dollarization to currency boards captures the main implications of dollarization and how its effects differ from those of adopting a firm peg. Furthermore, much of the current discussion about dollarization has been motivated by suggestions that Argentina should take the next step: moving from its currency board, with a oneto-one fix between the peso and the dollar, to full dollarization.

Currency board and dollarization arrangements are quite similar, but a comparison is nonetheless revealing. To begin with, dollarization implies the loss of seigniorage revenue for the government. But dollarization's key distinguishing feature is that it would be permanent, or nearly so. It would presumably be much more difficult to reverse dollarization than to modify or abandon a currency board arrangement.

With few recent exceptions, countries introducing their own currencies have done so in the context of newly gained national independence, as, for example, have the countries of the former Soviet Union. These currencies have, moreover, almost always replaced a weak and inconvertible currency. In fact, the largest benefits such countries might obtain by pursuing the alternative of dollarization derive from the credibility attached to it, precisely because it is nearly irreversible. We now take a closer look at the benefits and costs of full dollarization.

Risk premiums

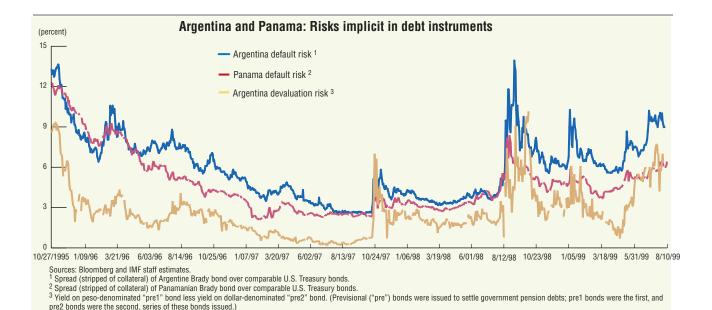
An expected benefit from the elimination of the risk of devaluation would be a reduction of country risk premiums, and thus lower interest rates, which would result in a lower cost of servicing the public debt and also in increased investment and faster economic growth. Interest rates on dollardenominated securities issued by the Argentine government, for example, exceed those on advanced countries' debt, reflecting the greater sovereign, or default, risk on the former. With dollarization, the interest premiums owing to devaluation risk would disappear but sovereign risk would not. The key question, then, is what effect dollarization would have on the cost of dollar-denominated borrowing.

Devaluation risk might increase default risk for several reasons. First, governments attempting to avoid a currency crisis may impose currency controls that force a suspension of payments on foreign debt. Second, default risks could rise with a devaluation owing to the higher cost of servicing dollardenominated debt. And third, a devaluation could cause heavy losses in the financial sector, and governments might end up bearing most of the cost.

Not all default risks arise from the risk of currency crises, however. Sovereign defaults may result from an unsustainable fiscal position or political turmoil, and dollarization cannot prevent this sort of crisis. Although data show that sovereign risk and devaluation risk move together (see the Argentine data shown in the chart on page 40), this does not establish a causal link from devaluation risk to sovereign risk, or vice versa. For example, a general "flight to quality" by investors (originally unrelated to fears of devaluation) would raise both the measured risk of default and the risk of devaluation. Evidence from Panama suggests that, indeed, the observed parallel movements in sovereign risk and devaluation risk reflect common factors. The chart suggests that the interest rate spreads over U.S. treasury bills of Argentine and Panamanian Brady bonds are, in large measure, driven by common factors. Thus, the absence of currency risk in Panama does not isolate that country from swings in market views of emerging markets. Dollarization can help reduce risk premiums, but only to a limited extent.

Stability and integration

Looking just at interest rates, however, provides too narrow a perspective. Important as reducing risk spreads is, dollarization may offer other gains that, although not immediately observable, may prove more beneficial over time. To begin with, speculative attacks and currency crises are costly not



only because their possible emergence widens risk premiums but also because they have dire consequences for the domestic economy. Of course, dollarization would not completely eliminate the risk of external crises; indeed, Panama has had several crises and consequently entered into a large number of IMF programs. Nevertheless, dollarization holds the promise of at least reducing the frequency and scale of crises and incidences of contagion.

In addition to promoting financial integration, dollarization may contribute to trade integration with the United States to an extent that would not be possible otherwise. The volume of trade among Canadian provinces is more than 20 times that of their trade with U.S. states, after corrections are made for other variables that explain trade across provinces or states. The use of a common currency may be an important factor in explaining this pattern of national market integration, given the fairly low transaction costs and restrictions to trade across the Canadian-U.S. border.

Seigniorage

A country adopting a foreign currency as its legal tender would lose the income from seigniorage. First, the country would have to purchase the stock of domestic currency held by the public (and banks) with dollars from the country's international reserves or with borrowed funds. Second, the country would give up future seigniorage earnings stemming from the flow of new currency printed every year to satisfy the increase in the demand for money. These increases are likely to become smaller over time, however, as financial development results in a reduced need for currency to effect transactions.

Seigniorage costs can be significant. For Argentina, domestic currency in circulation is equivalent to roughly \$15 billion (5 percent of GDP), and the annual increase in currency demand has averaged roughly \$1 billion (0.3 percent of GDP) in recent years. About \$0.7 billion (0.2 percent of GDP) a year in interest on the existing stock of currency would be lost because of dollarization. These forgone interest earnings would grow over time with the increase in money demand. Argentina's seigniorage loss would be the United States' gain. For this reason, it has been suggested that the

United States share this seigniorage with dollarizing countries according to some agreed-upon formula (as is done in the euro and the South African rand areas).

Exit option

Suppose that the real exchange rate in a dollarized country becomes overvalued. This may result from excessive wage increases, a sharp deterioration in its terms of trade, or the dollar itself becoming overvalued relative to the currencies of other important trading partners. Countries with flexible exchange rate regimes can adjust by allowing depreciation to occur in, one hopes, a gradual and nontraumatic way. With dollarization or fixed rates, the real devaluation must be achieved through a fall in nominal wages and prices. Experience has shown that these declines are often achieved only at the cost of economic recessions, because resistance to nominal wage and price reductions can be strong. Countries with currency boards have, of course, already eliminated much of their choice with regard to the exchange rate. But what distinguishes such countries from dollarized economies is that, in extreme cases, the former can devalue more easily.

Departures from the gold standard in the interwar years and the devaluation of the CFA franc in 1994 suggest that an exit option may indeed have some real value in the presence of extreme shocks. During the Great Depression, countries abandoned the gold standard—the fixed exchange regime of that time. Argentina suspended convertibility in 1929 and followed an active monetary policy to sterilize the impact of capital outflows, which helped to minimize the impact of the Great Depression. More recently, in 1994, when countries of the CFA franc zone in West and Central Africa faced a prolonged deterioration of their terms of trade and a steep rise in their labor costs, combined with a nominal appreciation of the French franc against the U.S. dollar, they decided to adjust their firm-peg regime, which had been in place since 1948, and devalue the CFA franc. This exchange rate realignment led to a significant economic turnaround during 1994-97 and had little inflationary impact on their economies. Had they "French franc-ized" instead, making the necessary adjustment would have been more difficult.

Despite those experiences, many countries might not profit from an exit option even when the currency is overvalued. Where policymakers have little credibility, or where the dollar is already the unit of account, a nominal devaluation may rapidly lead to enough inflation to undo the devaluation's positive effects. As we have observed in a variety of recent currency crises, devaluations undertaken in a context of weak banking systems and large foreign exchange exposure in the private sector damage the financial health of banks and businesses, sharply disrupting economic activity. This implies that devaluation may be a prohibitively costly policy option in some cases and that moving to full dollarization would not entail the loss of an important policy tool.

Lender-of-last-resort function

As lenders of last resort, central banks stand ready to provide liquidity to the banking system in the event of a systemic bank run. The central bank does this essentially by using its ability to create liquidity—something that it would not have in a dollarized system. Currency boards face a similar constraint, because they can create base money only to the extent that they accumulate reserves. Countries with currency board arrangements can, however, retain some flexibility to create money that is not fully backed by reserves, so as to be able to deal with the risk of banking crises. During the 1995 Tequila crisis, the central bank of Argentina was able partially to accommodate the run on domestic deposits

by temporarily reducing the reserve coverage of the monetary base. In the wake of the 1997 speculative attacks, the Hong Kong Monetary Authority introduced a discount window to provide short-term liquidity to banks and may have moved closer to taking advantage of the flexibility granted by a currency board arrangement. In a dollarized economy, as in an economy with a currency board, the authorities have the option of obtaining lines of credit from external sources that might be used in the event of a crisis. Experience so far with such lines of credit suggests, however, that they may not be very useful precisely when they are needed, because foreign banks have many ways to reduce their exposures to a country experiencing a serious crisis. Alternatively, the authorities might build up a reserve fund from tax revenues in anticipation of financial sector emergencies if they have sufficient room for maneuver on fiscal policy.

In any case, the importance of a curtailment of the lenderof-last-resort function should not be exaggerated, because the ability of a central bank to deal with a financial crisis solely by printing money is inevitably limited. Dollarization may, moreover, make a bank run less likely. If there are not



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significant currency mismatches in the banks' positions, depositors may have more confidence in the domestic banking system. If large foreign banks play a dominant role in the banking system, which would presumably be encouraged by dollarization, this would also reduce the danger of a bank run.

Conclusion

What is the balance of costs and benefits of full dollarization? Our discussion has perhaps been frustratingly inconclusive. In our view, this is inevitable, given the complexity of the issue and the current state of knowledge about it. We can at least estimate the potential benefits of lower interest rates and the cost of forgone seigniorage revenues. But many of the most important considerations, such as the value of keeping an exit option, are the least quantifiable.

Which countries are likely to benefit from dollarization? The first group of candidates consists of countries that are highly integrated with the United States in trade and financial relations (and that are candidates to form what the economics literature calls an optimal currency area). Yet most countries in Latin America are quite different from the United States in their economic structure and would probably not benefit greatly from dollarization unless it took place in the context of a deep market integration (carried out in European Union style). The current discussion (and this article) centers on a different group of candidates: emerging market economies exposed to

volatile capital flows but not necessarily close, in an economic sense, to the United States. For these countries, the more the U.S. dollar is already used in their domestic goods and financial markets, the smaller the advantage of keeping their national currencies. For an economy that is already extremely dollarized, seigniorage revenues would be small (and the cost of purchasing the remaining stock of domestic currency also would be small), the exposures of banks and businesses would make devaluation financially risky, and the exchange rate would not serve as a policy instrument because prices would be "sticky" in dollar terms. In such cases, dollarization may offer more benefits than costs.

Postscript

On January 9, 2000, the President of Ecuador announced a decision to adopt the U.S. dollar as the country's legal tender. The sucre would retain a minor role, perhaps circulating only in denominations smaller than the equivalent of US\$1. The measure was a response to a complete loss of confidence in Ecuador's economic policy and the authorities' inability to stem pressure on the sucre. F&D